QC ABSTRACT

Project Name: Package-2, includes 5 works of Rs.245.00 lakhs 1) Improvements to Roads and Drains at Mariyannapalya Church to Defence Layout and Dynasty Layout in Ward No.06 Byatarayanapura Sub Division. 2) Improvements to Drains and Asphalting to roads at Balaji Layout near Railway Gate in Ward No.06 Byatarayanapura Sub Division. 3) Improvements to Drains and Asphalting to Roads at Vidyasagara Layout and Surrounding area in Ward No.06 Byatarayanapura Sub Division. 4) Improvements to Drains and asphalting to roads at Bharathnagara Saw mill road in Ward No.06 Byatarayanapura Sub Division. 5) Improvements to Drains and asphalting to Roads at Shiradi Sai Nagara and Hegadenagara in Ward No.06 Bytarayanapura Sub Division.

Name of Work: Improvements to Roads and Drains at Mariyannapalya Church to Defence Layout and Dynasty Layout in Ward No.06 Byatarayanapura Sub Division.

SL NO	Item Of Work	Name of Test	Frequency of Test/Quantity	Executed Quantity	Number of Tests Required	Number of Tests Conducted
		Materials				
1	WMM	SIEVE ANALYSIS	One Test		1	1
		IMPACT VALUE	One Test		1	1
		Flakiness Index	One Test		1	1
		Elongation Index	One Test		1	1
2	Bitumen	Penetration	One Test		1	1
		Softening	One Test		1	1
		Ductility	One Test		1	1
		Flash point	One Test		1	1
		Fire point	One Test		1	1
3	BC	SIEVE ANALYSIS	One Test		1	1
		STRIPPING VALUE	One Test		1	1
		Flakiness Index	One Test		1	1
		Elongation Index	One Test		1	1
		IMPACT VALUE	One Test		1	1
		Specific gravity	One Test		1	1
		Water Absorption	One Test		1	1
		Marshal Stability	One Test		1	1
		Marshal flow	One Test		1	1
		Percent air Voids	One Test		1	1
		Percent Voids in mineral Aggregate	One Test		1	1
		Percent Voids filled with Bitumen	One Test		1	1
		Density	One Test		1	1
		Gradation	One Test		1	1
4	Tack Coat	Rate of spread	One Test		1	1

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ಸಹಾಯಕ ಕಾರ್ಯಪಾಲಕ ಅಭಿಯಂತರರು
ದ್ಯಾವರಾಯನಪುರ ಉಪ ವಿಭಾಗ
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4, 7TH MAIN MALLESWARAM, BANGALORE -3

TEST REPORT OF AGGEGRATE IMPACT VALUE
IS: 2386 Part IV

Lab ID : **CP-RW-2019-10-11-19** **Date: 10-09-19**

Project Name : Package-2, includes 5 works of Rs.245.00 lakhs 1) Improvements to Roads and drains at Mariyannapalya Church to Defence Layout and Dynasty Layout in Ward No.06 Byatarayanapura Sub Division. 2) Improvements to Drains and Asphalting to roads at Balaji Layout near Railway Gate in Ward No.06 Byatarayanapura Sub Division. 3) Improvements to Drains and Asphalting to Roads at Vidyasagara Layout and Surrounding area in Ward No.06 Byatarayanapura Sub Division. 4) Improvements to Drains and asphalting to roads at Bharathnagara Saw mill road in Ward No.06 Byatarayanapura Sub Division. 5) Improvements to Drains and asphalting to Roads at Shiradi Sai Nagara and Hegadenagara in Ward No.06 Bytarayanapura Sub Division.

Name Of Work : Improvements to Roads and drains at Mariyannapalya Church to Defence Layout and Dynasty Layout in Ward No.06 Byatarayanapura Sub Division

Agency : Sri.G.Venkatesh, No.623/A, 11th main, HAL 2nd Stage Indiranagar, Bangalore-560 008.

Customer Reference : BBMP/EE/BTP/WO/10/2018-19

Date of Receipt : 07-09-19

Type of Mix : Coarse Aggregate for WMM (Wet Mix Macadam)

Date of test : 07-09-19

Sl.No	Particulars of observations	Index	TEST 1	TEST 2
1	Total weight of the surface dry sample sample (passing 12.5 mm and retained on 10mm sieve)	A	311.8	310.9
2	Weight of fraction passing 2.36mm sieve After giving 15 blows	B	69.8	68.4
3	weight of fraction retained 2.36mm sieve After giving 15 blows	C	241.4	242.3
4	Total weight of (B+C) is less than the initial weight (Weight A) by more than one gram the result shall be discarded and a fresh test made.	A-(B+C)	0.6	0.2
5	Aggregate impact value	(B/A)*100	22.4	22.0
6	Aggregate impact value (Mean of two tests)	Pecentage	22.2	

ಮಹಾಯಕ ಎಕ್ಸಿಕ್ಯೂಟಿವ್ ಇಂಜಿನಿಯರವರು
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DETERMINATION OF FLAKINESS INDEX AND ELONGATION INDEX OF COARSE AGGREGATE(IS 2386 (Part 1) 1963 (RA 2007)

Lab ID	:	**CP-RW-2019-10-11-19** **Date: 10-09-19**
Project Name	:	Package-2, includes 5 works of Rs.245.00 lakhs 1) Improvements to Roads and drains at Mariyannapalya Church to Defence Layout and Dynasty Layout in Ward No.06 Byatarayanapura Sub Division. 2) Improvements to Drains and Asphalting to roads at Balaji Layout near Railway Gate in Ward No.06 Byatarayanapura Sub Division. 3) Improvements to Drains and Asphalting to Roads at Vidyasagara Layout and Surrounding area in Ward No.06 Byatarayanapura Sub Division. 4) Improvements to Drains and asphalting to roads at Bharathnagara Saw mill road in Ward No.06 Byatarayanapura Sub Division. 5) Improvements to Drains and asphalting to Roads at Shiradi Sai Nagara and Hegadenagara in Ward No.06 Bytarayanapura Sub Division.
Name Of Work	:	Improvements to Roads and drains at Mariyannapalya Church to Defence Layout and Dynasty Layout in Ward No.06 Byatarayanapura Sub Division.
Agency	:	Sri.G.Venkatesh, No.623/A, 11th main, HAL 2nd Stage Indiranagar, Bangalore-560 008.
Customer Reference	:	BBMP/EE/BTP/WO/10/2018-19
Date of Receipt	:	07-09-19
Type of Mix	:	Coarse Aggregate for WMM (Wet Mix Macadam)
Date of test	:	07-09-19

Result:

Index	Percentage of Flakiness and Elongation Index	Secified limits as per MORTH specification table 400-12
Flakiness Index	10.7%	Combined Flakiness & Elongation Index for WMM is Maximum 35%
Elongation Index	11.9%	
Combined Flakiness and Elongation Index for WMM	22.6%	

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Format No: CP/TF/01

TEST REPORT ON BITUMEN

Lab ID : **CP-RW-2019-10-11-19** **Date: 12-09-19**

Project Name : Package-2, includes 5 works of Rs.245.00 lakhs 1) Improvements to Roads and drains at Mariyannapalya Church to Defence Layout and Dynasty Layout in Ward No.06 Byatarayanapura Sub Division. 2) Improvements to Drains and Asphalting to roads at Balaji Layout near Railway Gate in Ward No.06 Byatarayanapura Sub Division. 3) Improvements to Drains and Asphalting to Roads at Vidyasagara Layout and Surrounding area in Ward No.06 Byatarayanapura Sub Division. 4) Improvements to Drains and asphalting to roads at Bharathnagara Saw mill road in Ward No.06 Byatarayanapura Sub Division. 5) Improvements to Drains and asphalting to Roads at Shiradi Sai Nagara and Hegadenagara in Ward No.06 Bytarayanapura Sub Division.

Name Of Work : Improvements to Drains and asphalting to Roads at Shiradi Sai Nagara and Hegadenagara in Ward No.06 Bytarayanapura Sub Division.

Agency : Sri.G.Venkatesh, No.623/A, 11th main, HAL 2nd Stage Indiranagar, Bangalore-560 008.

Customer's Reference : BBMP/EE/BTP/WO/10/2018-19

Date of Receipt : 11-09-19

Sample Type : Bitumen

Reference to BIS codes : IS: 1201-1220(1978) (Reaffirmed-2004)

Date of test : 11-09-19

Test Results

Sl.no	Name of Test	Result	Requirements as per IS:73-2013
1	Penetration at 25°C , in 1/10th mm	**66**	60 to 70
2	Softening Point, °C	**46**	Min. 40°C
3	Ductility, cm	**99**	Min. 75cm
4	Flash point, °C	**232**	Min. 220°C
	Fire point, °C	**248**	

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TEST RESULTS OF GRADATION FOR BC
IS 2386 (Part 1) 1963 (RA 2007)

Lab ID : **CP-RW-2019-10-11-19** **Date: 16-09-19**

Project Name : Package-2, includes 5 works of Rs.245.00 lakhs 1) Improvements to Roads and drains at Mariyannapalya Church to Defence Layout and Dynasty Layout in Ward No.06 Byatarayanapura Sub Division. 2) Improvements to Drains and Asphalting to roads at Balaji Layout near Railway Gate in Ward No.06 Byatarayanapura Sub Division. 3) Improvements to Drains and Asphalting to Roads at Vidyasagara Layout and Surrounding area in Ward No.06 Byatarayanapura Sub Division. 4) Improvements to Drains and asphalting to roads at Bharathnagara Saw mill road in Ward No.06 Byatarayanapura Sub Division. 5) Improvements to Drains and asphalting to Roads at Shiradi Sai Nagara and Hegadenagara in Ward No.06 Bytarayanapura Sub Division.

Name Of Work : Improvements to Roads and drains at Mariyannapalya Church to Defence Layout and Dynasty Layout in Ward No.06 Byatarayanapura Sub Division

Agency : Sri.G.Venkatesh, No.623/A, 11th main, HAL 2nd Stage Indiranagar, Bangalore-560 008.

Customer Reference : BBMP/EE/BTP/WO/10/2018-19

Date of Receipt : 13-09-19

Type of Mix : BC-Plant (Bituminous Concrete)

Date of test : 13-09-19

Oven Dry Weight : 5000 Grams

IS Sieve Size (mm)	Weight Retained (gm)	Comulative Weight Retained (gm)	Comulative % of Retained	Comulative % of Passing	Secified limits as per MORTH specification table 500-17(grading-2)
19	0	0	0.0	100.0	100
13.2	74	74	1.5	98.5	90-100
9.5	802	876	17.5	82.5	70-88
4.75	1010	1886	37.7	62.3	53-71
2.36	387	2273	45.5	54.5	42-58
1.18	424	2697	53.9	46.1	34-48
0.6	576	3273	65.5	34.5	26-38
0.3	552	3825	76.5	23.5	18-28
0.15	450	4275	85.5	14.5	12-20
0.075	328	4603	92.1	7.9	4-10
PAN	397	5000	100	0.0	0

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TEST REPORT OF AGGEGRATE STRIPPING VALUE OF ROAD AGGRGATE (IS:6241)

Lab ID	:	**CP-RW-2018-07-04-01** **Date: 16-09-19**
Project Name	:	Package-2, includes 5 works of Rs.245.00 lakhs 1) Improvements to Roads and drains at Mariyannapalya Church to Defence Layout and Dynasty Layout in Ward No.06 Byatarayanapura Sub Division. 2) Improvements to Drains and Asphalting to roads at Balaji Layout near Railway Gate in Ward No.06 Byatarayanapura Sub Division. 3) Improvements to Drains and Asphalting to Roads at Vidyasagara Layout and Surrounding area in Ward No.06 Byatarayanapura Sub Division. 4) Improvements to Drains and asphalting to roads at Bharathnagara Saw mill road in Ward No.06 Byatarayanapura Sub Division. 5) Improvements to Drains and asphalting to Roads at Shiradi Sai Nagara and Hegadenagara in Ward No.06 Bytarayanapura Sub Division.
Name Of Work	:	Improvements to Roads and drains at Mariyannapalya Church to Defence Layout and Dynasty Layout in Ward No.06 Byatarayanapura Sub Division.
Agency	:	Sri.G.Venkatesh, No.623/A, 11th main, HAL 2nd Stage Indiranagar, Bangalore-560 008.
Customer Reference	:	BBMP/EE/BTP/WO/10/2018-19
Date of Receipt	:	13-09-19
Type of Mix	:	BC(Bitumenous Concrete)
Date of test	:	13-09-19
Type of Binder	:	60/70
% of Binder Used	:	5.0%
Weight of Aggregate	:	200.0 gm
Weight of Binder	:	10.0 gm
Temperature of water bath	:	40°C

No of test	Retained Stripping Percentage	Stripping Percentage	Average Retained Stripping Percentage	Secified limits as per MORTH specification table 500-8
1	98.5	1.5	98.3	Minimum Retained Coating 95%
2	99.5	0.5		
3	97.0	3.0		

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ಬ್ಯಾಟರಾಯನಪುರ ಉಪ ವಿಭಾಗ
ಬಿ.ಬಿ.ಎಂ.ಪಿ ಬೆಂಗಳೂರು-24

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PHYSICAL REQUIREMENTS FOR COARSE AGGREGATE FOR BITUMINOUS CONCRETE

Lab ID	:	**CP-RW-2018-07-04-01** **Date: 16-09-19**
Project Name	:	Package-2, includes 5 works of Rs.245.00 lakhs 1) Improvements to Roads and drains at Mariyannapalya Church to Defence Layout and Dynasty Layout in Ward No.06 Byatarayanapura Sub Division. 2) Improvements to Drains and Asphalting to roads at Balaji Layout near Railway Gate in Ward No.06 Byatarayanapura Sub Division. 3) Improvements to Drains and Asphalting to Roads at Vidyasagara Layout and Surrounding area in Ward No.06 Byatarayanapura Sub Division. 4) Improvements to Drains and asphalting to roads at Bharathnagara Saw mill road in Ward No.06 Byatarayanapura Sub Division. 5) Improvements to Drains and asphalting to Roads at Shiradi Sai Nagara and Hegadenagara in Ward No.06 Bytarayanapura Sub Division.
Name Of Work	:	Improvements to Roads and drains at Mariyannapalya Church to Defence Layout and Dynasty Layout in Ward No.06 Byatarayanapura Sub Division
Agency	:	Sri.G.Venkatesh, No.623/A, 11th main, HAL 2nd Stage Indiranagar, Bangalore-560 008.
Customer Reference	:	BBMP/EE/BTP/WO/10/2018-19
Date of Receipt	:	13-09-19
Type of Mix	:	BC (Bituminous Concrete)
Date of test	:	13-09-19

Table 500-16 : Physical Requirements fo Coarse Aggregate for Bituminous Concrete

Property	Test	Result	Specification	Method of Test
Partical Shape	Flakiness Index	9.6	Combined Flakiness & Elongation Index for BC is Maximum 35%	IS:2386 Part I
	Elongation Index	10.2		
Strength	Aggregate Impact Value	21	Maximum 24%	IS:2386 Part IV
Specific gravity	Specific gravity	2.57	Maximum 2.7	IS:2386 Part III
Water Absorption	Water Absorption	0.22	Maximum 2%	IS:2386 Part III

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TESTS RESULTS ON STABILITY OF MIX

Lab ID	:	**CP-RW-2018-07-04-01** **Date: 16-09-19**
Project Name	:	Package-2, includes 5 works of Rs.245.00 lakhs 1) Improvements to Roads and drains at Mariyannapalya Church to Defence Layout and Dynasty Layout in Ward No.06 Byatarayanapura Sub Division. 2) Improvements to Drains and Asphalting to roads at Balaji Layout near Railway Gate in Ward No.06 Byatarayanapura Sub Division. 3) Improvements to Drains and Asphalting to Roads at Vidyasagara Layout and Surrounding area in Ward No.06 Byatarayanapura Sub Division. 4) Improvements to Drains and asphalting to roads at Bharathnagara Saw mill road in Ward No.06 Byatarayanapura Sub Division. 5) Improvements to Drains and asphalting to Roads at Shiradi Sai Nagara and Hegadenagara in Ward No.06 Bytarayanapura Sub Division.
Name Of Work	:	Improvements to Roads and drains at Mariyannapalya Church to Defence Layout and Dynasty Layout in Ward No.06 Byatarayanapura Sub Division
Agency	:	Sri.G.Venkatesh, No.623/A, 11th main, HAL 2nd Stage Indiranagar, Bangalore-560 008.
Customer Reference	:	BBMP/EE/BTP/WO/10/2018-19
Date of Receipt	:	13-09-19
Type of Mix	:	BC (Bituminous Concrete)
Date of test	:	13-09-19

The results of the tests conducted on the Bituminous Concrete mix sample are as follow

Sl.No	Particulars of observations	TEST 1	TEST 2	Secified limits as per MORTH specification table 500-11
1	Marshal Stability at 60°C, KN	11.12	11.01	10KN(min)
2	Marshal flow at 60°C, mm	3.54	3.63	2-4
3	Percent air Voids	4.84	4.76	3-5
4	Percent Voids in mineral Aggregate(VMA %)	14.26	14.18	13-15
5	Percent Voids filled with Bitumen(VFB %)	71.85	70.65	65-75
6	Density, g/cc	2.24	2.22	–

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TEST RESULTS OF BITUMEN BINDAR CONTENT AND GRADATION FOR BC
IS 2386 (Part 1) 1963 (RA 2011)

Lab ID	:	**CP-RW-2019-10-11-19**	**Date: 20-09-19**
Project Name	:	Package-2, includes 5 works of Rs.245.00 lakhs 1) Improvements to Roads and drains at Mariyannapalya Church to Defence Layout and Dynasty Layout in Ward No.06 Byatarayanapura Sub Division. 2) Improvements to Drains and Asphalting to roads at Balaji Layout near Railway Gate in Ward No.06 Byatarayanapura Sub Division. 3) Improvements to Drains and Asphalting to Roads at Vidyasagara Layout and Surrounding area in Ward No.06 Byatarayanapura Sub Division. 4) Improvements to Drains and asphalting to roads at Bharathnagara Saw mill road in Ward No.06 Byatarayanapura Sub Division. 5) Improvements to Drains and asphalting to Roads at Shiradi Sai Nagara and Hegadenagara in Ward No.06 Bytarayanapura Sub Division.	
Name Of Work	:	Improvements to Roads and drains at Mariyannapalya Church to Defence Layout and Dynasty Layout in Ward No.06 Byatarayanapura Sub Division.	
Agency	:	Sri.G.Venkatesh, No.623/A, 11th main, HAL 2nd Stage Indiranagar, Bangalore-560 008.	
Customer Reference	:	BBMP/EE/BTP/WO/10/2018-19	
Date of Receipt	:	18-09-19	
Type of Mix	:	BC (Bituminous Concrete)	
Date of test	:	18-09-19	

Sl.no	Description	Index	Trail 1	Trail 2
1	Weight of the Sample	A	500	500
2	Weight of the sample After extraction	B	469	470
3	Bitumen percentage	$\frac{A-B}{A} \times 100$	6.20	6.00
4	Average percentage	%	6.1	

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Lab ID : **CP-RW-2019-10-11-19** **Date: 20-09-19**

AFTER EXTRACTION - Trail-1

Total Weight of the Sample(gm) : 471

IS Sieve Size (mm)	Weight Retained (gm)	Comulative Weight Retained (gm)	Comulative % of Retained	Comulative % of Passing	Secified limits as per MORTH specification table 500-23(grading-2)
19	0	0	0.0	100.0	100
13.2	5	5	1.1	98.9	90-100
9.5	67	72	15.3	84.7	70-88
4.75	135	207	43.9	56.1	53-71
2.36	50	257	54.6	45.4	42-58
1.18	35	292	62.0	38.0	34-48
0.6	28	320	67.9	32.1	26-38
0.3	55	375	79.6	20.4	18-28
0.15	31	406	86.2	13.8	12-20
0.075	42	448	95.1	4.9	4-10

AFTER EXTRACTION - Trail-2

Total Weight of the Sample(gm) : 472

IS Sieve Size (mm)	Weight Retained (gm)	Comulative Weight Retained (gm)	Comulative % of Retained	Comulative % of Passing	Secified limits as per MORTH specification table 500-23(grading-2)
19	0	0	0.0	100.0	100
13.2	7	7	1.5	98.5	90-100
9.5	62	69	14.6	85.4	70-88
4.75	131	200	42.4	57.6	53-71
2.36	67	267	56.6	43.4	42-58
1.18	36	303	64.2	35.8	34-48
0.6	30	333	70.6	29.4	26-38
0.3	41	374	79.2	20.8	18-28
0.15	28	402	85.2	14.8	12-20
0.075	44	446	94.5	5.5	4-10

Note:-

The results pertain to the samples received and tested.
All information Furnished by Customer/ Representative
Any correction in the report will make this report invalid.
This report without prior written approval should not be reproduced or published in full or part.
Samples will be disposed after 90 days from the date of issue of test certificate

ಸಹಾಯಕ ಕಾರ್ಯಪಾಲಕ ಅಭಿಯಂತರರು
ಬ್ಯಾಟರಾಯನಪುರ ಉಪ ವಿಭಾಗ
ಬಿ.ಬಿ.ಎಂ.ಪಿ

FOR CIVIL Pro.

R KARTHIK RECHAN
Authorized Signatory
Quality Manager

CIVIL PRO BANGALORE Sig..... Date.....

End of Report

ಸಹಾಯಕ ಕಾರ್ಯಪಾಲಕ ಅಭಿಯಂತರರು
ಬ್ಯಾಟರಾಯನಪುರ ಉಪ ವಿಭಾಗ
ಬಿ.ಬಿ.ಎಂ.ಪಿ., ಬೆಂಗಳೂರು-24

DETERMINATION OF RATE OF SPREAD TACK COAT

Lab ID : **CP-RW-2019-10-11-19** **Date: 19-09-19**

Project Name : Package-2, includes 5 works of Rs.245.00 lakhs 1) Improvements to Roads and Drains at Mariyannapalya Church to Defence Layout and Dynasty Layout in Ward No.06 Byatarayanapura Sub Division. 2) Improvements to Drains and Asphalting to roads at Balaji Layout near Railway Gate in Ward No.06 Byatarayanapura Sub Division. 3) Improvements to Drains and Asphalting to Roads at Vidyasagara Layout and Surrounding area in Ward No.06 Byatarayanapura Sub Division. 4) Improvements to Drains and asphalting to roads at Bharathnagara Saw mill road in Ward No.06 Byatarayanapura Sub Division. 5) Improvements to Drains and asphalting to Roads at Shiradi Sai Nagara and Hegadenagara in Ward No.06 Bytarayanapura Sub Division.

Name of Work : Improvements to Roads and Drains at Mariyannapalya Church to Defence Layout and Dynasty Layout in Ward No.06 Byatarayanapura Sub Division.

Agency : Sri.G.Venkatesh, No.623/A, 11th main, HAL 2nd Stage Indiranagar, Bangalore-560008.

Customer Reference : BBMP/EE/BTP/WO/10/2018-19

Sample Condition : Satisfactory

Date of Receipt : 18-09-19

Type of Mix : Tack coat

Date of test : 18-09-19

Sl.No	Determination	Unit	TEST 1	TEST 2
1	Size of Plate (mxm)	Mt	0.30 x .30	0.30 x .30
2	Area of Plate (a)	Sq.mtr	0.09	0.09
3	Initial Wt of empty Plate (b)	Kg	0.78	0.748
4	Final weight of plate after application of tack Coat (c)	Kg	0.803	0.771
5	Weight of tack Coat (d=c-b)	Kg	0.023	0.023
6	Rate of spread of tack coat	Kg/sq.m	0.256	0.256
7	Average	Kg/sq.m	0.256	
8	Specified Limit	Kg/sq.m	0.250 Kg/sq.m	

ಸಹಾಯಕ ಅಭಿಯಂತರರು
ಬಿ.ಬಿ.ಎಂ.ಪಿ ಬ್ಯಾಟರಾಯನಪುರ ಉಪ ವಿಭಾಗ

ಸಹಾಯಕ ಕಾರ್ಯಪಾಲಕ ಅಭಿಯಂತರರ
ಬ್ಯಾಟರಾಯನಪುರ ಉಪ ವಿಭಾಗ
ಬಿ.ಬಿ.ಎಂ.ಪಿ ಬೆಂಗಳೂರು-24

FOR CIVIL Pro.

R KARTHIK RECHAN
Authorized Signatory
Quality Manager

End of Report

CIVIL Pro
Sig.....
Date.....
BANGALORE